

THE TABANIDÆ OF COLOMBIA (DIPTERA)¹

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The tabanid fauna of Colombia is rich and extremely varied. In the northwestern part it resembles that of the Republic of Panama, which is now well known through G. B. Fairchild's prolonged investigations. In the northeastern areas it is similar to that of the adjoining districts of Venezuela, a fauna which has recently been listed by A. Stone (1945). The fauna of the southwestern highlands has affinities with that of Ecuador. Finally many of the species of the great Amazonian rain forest extend into the southeastern territories.

At present, however, this vast country has been little investigated entomologically. Our preliminary list of definitely recorded species will probably be more than doubled by future discoveries. Indeed, our only purpose in publishing it is to incite to further collecting. The earliest records of Colombian tabanids by Macquart (1846 to 1855) were indefinite as to locality and some of his species are at present unrecognized. Schiner (1868), v. Röder (1886), and Ricardo (1902) added a few species. In recent years, Enderlein (1925), Szilády (1926), Dunn (1929), Kröber (1925 to 1940), and Antunes (1937) made more important additions.

The present enumeration includes all species recorded thus far from Colombia; but we have clearly indicated which of these we have not seen.² The asterisk, on the other hand, indicates the species of which we have studied specimens taken in Colombia. Material was seen from the Museum of Comparative

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²Entomologists should be warned not to trust always the locality record "Bogotá" so common in the literature. Often it means merely that the specimens were shipped from Bogotá to Europe, although they may have been collected in some other section of Colombia.

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The localities are grouped into the major political divisions (Departments and Intendencias), which are enumerated in alphabetical sequence.

KEY TO GENERA

1. Hind tibiae with apical spurs. Subcosta always bare both above and below. Labella always with shiny sclerotized plates. Subepaulet bare, without macrotrichia. Subfamily *Pangoniinae* 2.
- Hind tibiae without apical spurs. Subcosta generally hairy, at least with some hairs beneath. Subfamily *Tabaninae* 9.
2. First two antennal segments elongate, together often as long as or longer than third. Third antennal segment consisting of a long basal part (which sometimes shows superficial rings) and four terminal annuli. Proboscis short, seldom exceeding the height of the head *Chrysops*.
- First two antennal segments short, seldom equalling together half the length of the third. Third antennal segment consisting of five to eight divisions. Proboscis often elongate 3.
3. Third antennal segment consisting of a long basal part and four terminal annuli. Proboscis short. Wings

- extensively blackish. Eyes bare. All posterior cells open *Hemichrysops*.
- Third antennal segment consisting of seven or eight divisions 4.
4. Eyes bare. Face not produced nor snout-like. Proboscis moderately long. First posterior cell closed. Fork of third longitudinal vein generally with an appendix *Esenbeckia*.
- Eyes hairy. Face more or less produced and snout-like. Proboscis often very long 5.
5. Third antennal segment of seven divisions, the first six bearing long finger-like processes 6.
- Third antennal segment without finger-like processes 7.
6. First divisions of third antennal segment bearing processes only on the dorsal side; basal process longer than the others *Elaphella*.
- First divisions of third antennal segment with processes on both the dorsal and ventral sides; processes all about equally long *Pityocera*.
7. First and fourth posterior cells closed and petiolate. Wings often with dark markings *Scione*.
- First posterior cell closed or narrowly open, the fourth always open. Wings hyaline or smoky, never with prominent markings 8.
8. Coxæ and femora slightly pilose or nearly bare *Fidena*.
- Coxæ and femora densely covered with long hairs. *Melpia*.
9. First antennal segment more or less elongate, not less than one-fourth of the length of the third segment. Subepaulet bare, without macrotrichia. Body without green metallic scales 10.
- First antennal segment short, about as long as thick; if longer, the body bears some green metallic scales. Abdomen broad and short 11.
10. Abdomen broad and short. Third antennal segment slender, never with a basal process or tooth, at most somewhat widened or slightly produced near the base *Diachlorus*.
- Abdomen slender, narrow and long. Third antennal segment with or without a tooth or finger-shaped process near the base *Acanthocera*.
11. First antennal segment greatly inflated. Palpi very

- slender. Subepaulet bare, without macrotrichia. Upper branch of third vein turned abruptly forward, joining the costa closer to the second vein than to the wing apex. Face much swollen at insertion of antennæ *Bolbodimyia*.
- First antennal segment not inflated, normal 12.
12. Base of third antennal segment with a long, slender, usually finger-shaped process reaching close to or even beyond the first terminal annulus 13.
- Base of third antennal segment with or without dorsal angle or with a broad tooth which extends at most midway to the base of the first terminal annulus 16.
13. Subepaulet completely covered with macrotrichia. Fore tibiæ not inflated. Eyes bare *Alliomma*.
- Subepaulet either bare or rarely with a few macrotrichia over a small area only 14.
14. Body very stout, often densely hairy. At least fore tibiæ inflated, often strongly so; hind tibiæ densely fringed with long hairs. Eyes bare *Stibasoma*.
- Body not especially stout nor hairy. Tibiæ not appreciably inflated, at most with a few scattered long hairs 15.
15. Eyes pilose or pubescent in both sexes, the hairs sometimes short, scattered and easily overlooked. Labella small and compact, without shiny, sclerotized areas *Dasychela*.
- Eyes bare in both sexes. Labella more or less sclerotized and shiny *Dichelacera*.
16. All tibiæ strongly inflated 17.
- Tibiæ normal. Palpi dull and hairy 19.
17. Palpi normal, dull, hairy. Subcallus dull, pollinose. Basal division of third antennal segment scarcely longer than terminal annuli, with a strong, broad tooth. Subepaulet covered with macrotrichia *Stigmatophthalmus*.
- Palpi flattened, shiny, bare. Subcallus denuded, shiny 18.
18. Third antennal segment with basal division long and wide, nearly four times as long as terminal annuli, provided with a very short, broad tooth. Subepaulet covered with macrotrichia. Body without metallic green scales *Selasoma*.
- Third antennal segment with basal portion narrow, with-

- out tooth. Subepaulet bare, without macrotrichia.
Body with some metallic green scales. *Lepiselaga*.
19. Subepaulet bare, without macrotrichia, rarely with a few macrotrichia either restricted to a small area or much more scattered than on the base of the costa. 20.
Subepaulet wholly covered with appressed macrotrichia, like the base of the costa. Frontal callus present.
Labella fleshy, without shiny, sclerotized areas. 25.
20. No frontal callus. Labella short, with sclerotized, smooth and shiny areas. Body green or greenish in life. *Chlorotabanus*.
Frontal callus present. 21.
21. Third antennal segment of four divisions (only three well-marked annuli). Frons very broad; callus transverse, swollen, narrower than frons. Vertex of female with a small shiny area. Face with two deep, shiny pits. *Brachytabanus*.
Third antennal segment of five divisions (four terminal annuli); if some are partly fused, either frontal callus as wide as frons, or vertex of female without shiny area, or face without deep, shiny pits. 22.
22. Eyes pilose or pubescent in both sexes. Frons relatively wide, less than five times as high as wide, with a broad callus. *Agelanius*.
Eyes bare in both sexes. 23.
23. Vertex of female with a well-marked tubercle. Frons relatively narrow, at least five times as high as wide, with elongate callus. Labella fleshy or membranous, without shiny, sclerotized areas. *Stenotabanus*.
Vertex of female without tubercle, rarely with a small flat, denuded area; in doubtful cases, frons much broader. 24.
24. Body unicolorous, more or less greenish or pale yellow in life. Frontal callus elongate. Labella with sclerotized, shiny areas. *Cryptotylus*.
Body not greenish, usually with contrasting markings. Frontal callus as a rule wider than high and as wide as frons. Labella fleshy or membranous, without shiny, sclerotized areas. *Phæotabanus*.
25. Vertex of female with a more or less prominent, denuded tubercle, sometimes with traces of ocelli. Eyes bare or pilose. 26.

- Vertex of female without tubercle, flat. Eyes of female bare, of male either bare or pilose. *Tabanus*.
26. Vertex with at least traces of ocelli. Eyes in both sexes bare, unicolorous. Frons rather narrow. Scutellum covered with white or yellowish hairs. . . . *Leucotabanus*.
- Vertex without even traces of ocelli. Eyes in both sexes pilose, pubescent or with a few scattered hairs; in life often with color bands in the female. Frons relatively broad. *Hybomitra*.

*1. *Chrysops variegata* (Degeer). Synonyms: *Tabanus variegatus* Degeer, 1776; *Tabanus costatus* Fabricius, 1794; *Chrysops subfascipennis* Macquart, 1855.

Antioquia: near Medellín (N. Weber; also reported by Dunn, 1929); Porcecito, Río Porce (N. Weber). — Magdalena: Tucurínca (reported by Curran, 1928). — Meta: El Caibe (reported by Antunes, 1937); Villavicencio (J. Bequaert). — Putumayo: Puerto Limón (S. Renjifo); Mocoa (S. Renjifo). — Santander Sur: Puerto Olaya (J. Bequaert). — Valle del Cauca: Palmira (B. Losada S.); Hacienda La Carmelita, Río Frío (S. Renjifo). — Vaupés: between San José del Guaviare and Calamar (A. Gast. — Determined by G. Fairchild). — Ad. Lutz (1909) and Kröber (1925) reported this species from Colombia, without definite locality, as *C. costatus* and *C. costatus* var. *subfascipennis*.

*2a. *Chrysops læta* Fabricius, 1805.

Amazonas: El Encanto (recorded by Kröber, 1925). — Antioquia: near Medellín (N. Weber); Porcecito, Río Porce (N. Weber). — Caquetá: Florencia (Rómulo Patiño). — Chocó: Andagoya (F. Otoyá. — Determined by G. Fairchild); Utría (J. Boshell. — Determined by G. Fairchild). — Meta: El Caibe (reported by Antunes, 1937); Restrepo (J. Bequaert); Villavicencio (M. Bates; J. Bequaert). — Putumayo: Puerto Limón (S. Renjifo). — Valle del Cauca: Sonso (S. Renjifo); Hacienda El Tablazo, Tuluá (S. Renjifo). — Kröber (1925) records *C. læta* also from Bogotá, but this locality is probably erroneous.

2b. *Chrysops læta* var. *nigroviolacea* Kröber, 1925.

Amazonas: Río Igara-Paraná (reported by Pechuman, 1937). — Not seen by us from Colombia.

*3. *Chrysops leucospila* Wiedemann, 1828.

Boyacá: Muzo (J. Bequaert). — Meta: El Caibe (reported by Antunes, 1937); Villavicencio (M. Bates. — Determined by

G. Fairchild). — Vaupés: between San José del Guaviare and Calamar (A. Gast. — Determined by G. Fairchild). — First recorded from Colombia, without definite locality by Schiner (1868).

*4. *Chrysops calogaster* Schiner, 1868.

Boyacá: Muzo (J. Bequaert). — Chocó: El Valle, Utría (J. Boshell. — Determined by G. Fairchild). — Cundimarca: Villeta (J. Bequaert). — Meta: Restrepo (J. Bequaert).

*5. *Chrysops soror* Kröber, 1925.

Boyacá: Muzo (J. Bequaert).

6. *Chrysops melæna* Hine, 1925.

Santander Sur: Jazmín (reported by Dunn, 1929). — Not seen by us from Colombia.

7. *Chrysops incisa* Macquart, 1845.

Originally described from the temperate regions of New Grenada, which may have meant Colombia, this species has not yet been properly recognized; but possibly *C. auroguttata* Kröber is a synonym. — Not seen by us from Colombia.

8. *Chrysops auroguttata* Kröber, 1930.

One of the type-specimens of this species was from Colombia, without definite locality. It may, however, be a synonym of *C. incisa* Macquart. Most probably the specimen, supposedly from Bogotá, which Kröber recorded in 1925 as *C. incisa*, was what he later described as *C. auroguttata*. — Not seen by us from Colombia.

*9. *Chrysops renjifo* J. Bequaert, 1946.

Valle del Cauca: Veneral, Río Yurumanguí (S. Renjifo), holotype and paratype of the species.

*10. *Chrysops weberi* J. Bequaert, 1946.

Vaupés: Mitú (P. Allen), paratype of the species. The holotype is from British Guiana.

*11. *Chrysops chiriquensis* Fairchild, 1939.

Magdalena: Cincinnati, Santa Marta region, one male (W. M. Mann. — U.S.N.M.).

This appears to be the undescribed male of *C. chiriquensis*, a species known thus far only from Panama. It agrees with the female in many characters, particularly in the shape of the antennæ and the presence of a median pollinose stripe on the fronto-clypeus (over the basal or upper half). The wing mark-

ings are similar also, but the basal cells are much more extensively black. The abdominal pattern is the same, but the yellow markings are slightly smaller. Length, 7 mm., of wing 7.5 mm. The fronto-clypeus is much swollen and divided by a deep median saddle.

12. *Hemichrysops fascipennis* Kröber, 1930.

The type specimen was from Colombia, without more definite locality. — Not seen by us.

*13. *Esenbeckia chagresensis* Fairchild, 1942.

Magdalena: Río Frío (G. Salt), one of the paratypes of the species.

*14. *Esenbeckia diaphana* (Schiner). Synonym: *Pangonia diaphana* Schiner, 1868.

Meta: Restrepo (J. Bequaert). — Putumayo: Puerto Limón (S. Renjifo); Urcusique (S. Renjifo); San Pedro (S. Renjifo). — Originally described from Colombia, without definite locality.

*15. *Esenbeckia translucens* (Macquart). Synonym: *Pangonia translucens* Macquart, 1846.

Boyacá: Muzo (J. Bequaert).

*16. *Esenbeckia prasiniventris* (Macquart). Synonyms: *Pangonia prasiniventris* Macquart, 1846; *Pangonia semiviridis* Ricardo, 1900.

Cundinamarca: Bogotá (B. Guevara A.). — Magdalena: Río Frío (G. Salt); Agua Dulce, San Lorenzo Mts. (M. A. Carriker). — Originally described from Colombia, without definite locality. Kröber's (1932c) locality La Guayra is in Venezuela, not Colombia.

17. *Esenbeckia tinctipennis* Kröber, 1931d.

Chocó: Condoto, type locality of the species. — Not seen by us.

18. *Esenbeckia subvaria* (Walker). Synonym: *Tabanus subvarius* Walker, 1848.

Kröber (1932c) described the male of this species from Colombia, without definite locality. — Not seen by us.

19. *Esenbeckia arcuata* (Williston). Synonym: *Pangonia arcuata* Williston, 1895.

Kröber (1932c) records a female of this species from Co-

lombia, without definite locality. — Not seen by us from Colombia.

*20. *Esenbeckia illota* var. *osornoi* Fairchild, 1942.

Cundinamarca: Medina (J. V. Acuña). — Meta: Restrepo (J. Bequaert), paratype of the variety. — Santander Sur: Río Negro (J. V. Acuña).

Pangonia ferruginea Macquart, 1838 (not of Meigen, 1804), appears to be a synonym of one of the subspecies of *E. illota* Williston. Kröber's (1932c) *ferruginea*, from Venezuela, and Antunes' (1937) from Restrepo, were *E. illota* var. *osornoi*. Fairchild (1942) also records a specimen of the same form from Cristalina, Colombia (in Hine coll.), a locality unknown to us.

*21. *Esenbeckia testaceiventris* (Macquart). Synonyms: *Pangonia testaceiventris* Macquart, 1848; *Esenbeckia sexmaculata* Enderlein, 1925.

Cundinamarca: Tapias Las Cruces, Bogotá, one of the types of *E. sexmaculata*. — Meta: Restrepo (J. Bequaert).

In addition we have seen a possibly undescribed species of *Esenbeckia* from Valle del Cauca: La Carmelita, Río Frío (S. Renjifo).

*22. *Elaphella cervus* (Wiedemann). Synonym: *Pangonia cervus* Wiedemann, 1828.

Meta: Restrepo (J. Bequaert); Villavicencio (M. Bates. — Determined by G. Fairchild). — Putumayo: La Tagua Rómulo Patiño).

Pityocera festæ Giglio-Tos is fairly common in the Republic of Panama, but has not yet been taken in Colombia. As the type locality is in Darién, it may be expected to occur in Chocó.

*23. *Fidena gracilis* (Kröber). Synonym: *Melpia gracilis* Kröber, 1930g.

Meta: Restrepo (J. Bequaert); Villavicencio (M. Bates). — Nariño: Pasto (B. Guevara A.). — Originally described from Chiriqui, which is in Panama, not Colombia.

*24. *Fidena pubescens* (Ad. Lutz). Synonym: *Erephopsis pubescens* Ad. Lutz, 1909.

Putumayo: Puerto Asís (S. Renjifo).

25. *Fidena pyrausta* (Osten Sacken). Synonyms: *Pangonia pyrausta* Osten Sacken, 1886; *Melpia auricauda* Enderlein, 1925, according to Fairchild, 1941.

Boyacá: Muzo (type locality of *auricauda*). — Enderlein

seemingly records his *auricauda* also from Bogotá, but this is probably erroneous. Kröber (1930g) referred two females from the Magdalena River, Colombia, to *pyrausta*. — Not seen by us from Colombia.

26. *Fidena nigricorpus* Kröber, 1934. Synonym: *Melpia nigricans* Kröber, 1930g; not *Erephopsis nigricans* Ad. Lutz, 1909, now placed in *Melpia*.

Kröber's types of his *M. nigricans* came from Colombia (without definite locality) and Brazil. — Not seen by us.

27. *Fidena auribarba* (Enderlein). Synonym: *Melpia auribarba* Enderlein, 1925.

Enderlein described this species originally from Colombia, without definite locality ("Cordillera, tierra caliente"). He also described a *F. auribarba* var. *albibarba* (Enderlein, 1925) from Colombia ("Cordillera, tierra caliente"). — Not seen by us.

*28. *Fidena aureopygia* Kröber, 1931a.

Chocó: Opogodó, type locality of the species. — Valle del Cauca: Aji, Río Naya (S. Renjifo).

29. *Fidena fulvosericæa* Kröber, 1931a.

This species was described from "Darién, Colombia." The region known as Darién borders on the Gulf of Urabá and extends more in the present territory of Colombia than in the Republic of Panamá. — Not seen by us.

Kröber (1930c) records as *Sackenimyia analis* (Fabricius) two females from Colombia ("Cordillera, tierra caliente"). It is impossible to decide to which genus they may have belonged. The identity of Fabricius' *Pangonia analis* (1805) is not settled. What Ad. Lutz referred (doubtfully) to *analis* was a species of *Melpia* (= *Bombylopsis* Ad. Lutz), a genus not definitely known from Colombia.

Kröber (1933a) also mentions having seen a female of *Fidena sorbens* (Wiedemann), at the Berlin Museum, labelled as from the Cordillera of Colombia. He doubts, however, the correctness of the locality, which we feel is certainly erroneous. It is most unlikely that this species from southern Brazil and Paraguay would occur in Colombia.

30. *Fidena columbiensis* (Kröber). Synonym: *Melpia columbiensis* Kröber, 1930g.

Chocó: Condoto ("Upper Condosa" is no doubt a misspelling

of Río Condoto, as "Condota" was of Condoto), type locality of the species. — Not seen by us.

In addition we have seen from Colombia specimens of four species of *Fidena* thus far unrecognized from the descriptions. Some of these may be new.

*31. *Scione aurulans* (Wiedemann). Synonyms: *Pangonia aurulans* Wiedemann, 1830; *Scione lurida* Enderlein, 1925.

Magdalena: Vista Nieve, San Lorenzo Mts. (M. A. Carriker); Cerro Quemado, San Lorenzo Mts. (M. C. Carriker). — One of the types of *Scione lurida* was from Colombia, without definite locality.

*32. *Scione albifasciata* (Macquart). Synonym: *Pangonia albifasciata* Macquart, 1846.

Chocó: La Unión (W. A. Archer). — Magdalena: San Lorenzo Mts. (M. A. Carriker); northwestern Sierra Nevada de Santa Marta (P. Darlington). — Originally described from "New Grenada," which may have meant Colombia.

S. albifasciata is about the size of *S. distincta*, from which it differs mainly in the russet femora; the inner orbits of the female converge slightly toward the vertex.

*33. *Scione distincta* (Schiner). Synonym: *Diclisia distincta* Schiner, 1868.

Cundinamarca: Medina, Upper Río Guacavía (J. V. Acuña). — Putumayo: Upper Río Putumayo (B. Guevara A.). — Kröber (1930*h*) reported this species from Colombia, without definite locality.

Smaller than *S. maculipennis* and with blackish femora, the inner orbits of the female decidedly converging toward the vertex; the divisions of the third antennal segment are not swollen.

*34. *Scione maculipennis* (Schiner). Synonym: *Diclisia maculipennis* Schiner, 1868.

Chocó: La Unión (W. A. Archer). — Meta: Restrepo (J. Bequaert); Villavicencio (M. Bates. — Determined by G. Fairchild).

Kröber's (1930*h*) locality Guayaquil is in Ecuador, not Colombia. v. Röder (1886) recorded *S. maculipennis* from "Cerro Munchigne," Colombia, a locality unknown to us; and Ricardo (1902) reported it from Bogotá. It is not possible to refer these two records to one of the foregoing three species, which are so

closely allied that Fairchild (1942) regarded them all as one and the same. We believe, however, that they are distinct. *S. maculipennis* is larger than the other two, with russet femora, the divisions of the third antennal segment slightly swollen and somewhat bead-like, the wing markings better defined (the pale areas being decidedly yellowish), and the frons of the female nearly parallel-sided.

35. *Scione nigripes* (Kröber). Synonym: *Rhinotriclista nigripes* Kröber, 1930.

This species, originally described from "New Grenada," without definite locality, may have come from somewhere in Colombia. — Not seen by us.

36. *Scione obscurefemorata* Kröber, 1930*h*.

This species was originally described from Colombia, without definite locality ("Cordillera, tierra templada"). — Not seen by us.

37. *Scione rufescens* (Ricardo). Synonym: *Erephrosis rufescens* Ricardo, 1900.

Kröber (1930*h*) reported this species from Bogotá, Cundinamarca. — Not seen by us.

*38. *Scione minor* (Macquart). Synonyms: *Pangonia minor* Macquart, 1847; *Scione aurea* Szilády, 1926.

Cundinamarca: Bosque Calderón, Bogotá (J. Bequaert); Monserrate, Bogotá (E. Osorno); Arrayán (E. Osorno); Bogotá (B. Guevara A.). — Meta: without more definite locality (B. Guevara A.). — Putumayo: Upper Río Putumayo (B. Guevara A.).

Macquart's *Pangonia incompleta* of 1850, from Colombia may have been this species, rather than his earlier *P. incompleta* of 1845.

*39. *Scione punctata* Szilády, 1926. Synonym: *Rhinotriclista flavescens* Enderlein, 1930.

Magdalena: Sierra San Lorenzo (J. Ujhelyi, recorded by Szilády, 1926), the type locality; Vista Nieve, San Lorenzo Mountains (H. L. Viereck). — Kröber (1930*h*) reported *R. flavescens* from Colombia ("Cordillera"), without definite locality.

*40. *Scione rufipes* (Kröber). Synonym: *Rhinotriclista rufipes* Kröber, 1940.

Meta: Restrepo (J. Bequaert).

41. *Scione minuta* Szilády, 1926.

Magdalena: Sierra San Lorenzo, the type locality. — Not seen by us.

42. *Scione incompleta* (Macquart). Synonym: *Pangonia incompleta* Macquart, 1845.

Originally described from Colombia (♂ ♀), without more definite locality. Not seen by us.

In addition we have seen from Colombia specimens of two species of *Scione*, as yet unrecognized.

*43. *Lepiselaga crassipes* (Fabricius). Synonyms: *Hæmatopota crassipes* Fabricius, 1805; *Lepiselaga recta* Loew, 1869; *Tabanus lepidotus* Wiedemann, 1828. — The spelling *Lepidoselaga* Osten Sacken, 1876, is a superfluous emendation of *Lepiselaga* Macquart, 1838.

Caldas: La Dorada, Magdalena River (recorded by Dunn, 1929). — Chocó: Sautatá, Río Atrato (S. Renjifo). — Meta: Hacienda Yacuana near Villavicencio (E. Osorno). — Nariño: Río Patía (recorded by Dunn, 1929). — Santander Sur: Puerto Olaya (J. Bequaert); Barrancabermeja (J. V. Acuña). — Valle del Cauca: Puerto Merizalde, Río Naya (S. Renjifo); Cali, 3,260 ft. (Severo Quintero; E. I. Huntington; H. F. Schwarz). — The type locality of *L. recta* was New Grenada, which may have meant Colombia. We have seen Loew's types of *L. recta* at the Mus. Comp. Zoöl.

*44. *Stibasoma fulvohirtum* (Wiedemann). Synonyms: *Tabanus fulvohirtus* Wiedemann, 1828; *Tabanus compactus* Walker, 1854.

Boyacá: Guaguaquí (S. Renjifo). — Meta: Villavicencio (M. Bates). — First recorded from Colombia, without definite locality, by Schiner (1868).

45. *Stibasoma chionostigma* (Osten Sacken). Synonyms: *Tabanus chionostigma* Osten Sacken, 1886; *Stibasoma pachycephalum* Bigot, 1892; *Stibasoma flavistigma* Hine, 1912.

Valle del Cauca: Buenaventura (recorded by Kröber, 1932, as *S. flavistigma*. Also collected by Rodriguez in August, 1942, according to G. Fairchild's identification). — Not seen by us from Colombia.

46. *Stigmatophthalmus lutzi* Surcouf, 1921, Gen. Insect., Tabanidæ, p. 54; 1923, Ann. Soc. Ent. France, XCI, (for 1922), pt. 3, p. 242 (♀).

This species was described from Santa Fé de Bogotá, first very briefly in 1921 and later (1923) more in detail. We have not seen it; but from the descriptions it appears to be extremely close to, or possibly even identical with the genotype, *S. altivagus* Ad. Lutz. We have seen two females of *S. altivagus*, from Brazil. The genus appears to be close to *Selasoma*, though readily separated by the characters given in the key. It differs from *Stibasoma*, which it resembles superficially, in the short antennal tooth. *S. lutzi* was omitted from Kröber's Catalogue of Neotropical Tabanidæ (1934).

47. *Selasoma tibiale* (Fabricius). Synonym: *Tabanus tibialis* Fabricius, 1805.

Meta: Villavicencio (M. Bates. — Determined by G. Fairchild). — Not seen by us from Colombia.

*48. *Bolbodimyia bicolor* Bigot, 1892. Synonym: *Atylotus erythrocephalus* Bigot, 1892.

Boyacá: Muzo (J. Bequaert). — Meta: Restrepo (J. Bequaert); Retiro near Villavicencio (E. Osorno); Villavicencio (M. Bates. — Determined by G. Fairchild).

This species is extremely variable in color in the same locality. It may be completely black, with a black beard and black hairs on the pleura; or have the under side of the body, the entire head, most of the antennæ and tibiæ reddish, the beard and hairs on the pleura being also bright red. Some specimens are intermediate between these two extremes.

Dichelacera Macquart

We follow G. Fairchild (1943a) in subordinating *Catachlorops* and *Psalidia* as subgenera to *Dichelacera*.

Psalidia Enderlein (1922) has as type, by original designation, *Tabanus furcatus* Wiedemann, 1828. This group was originally proposed, as a genus, for Neotropical Tabaninæ with a long, finger-shaped basal process on the third antennal segment and the first posterior cell closed and stalked before the margin of the wing. In the more complete diagnosis of 1925, Enderlein states that the eyes are bare. The closed or open first posterior cell is not a character of generic value in Tabaninæ. Only species with the subepaulet bare or with a few macrotrichia only should be included.

KEY TO SUBGENERA

1. Labella large, about half the length of the proboscis, mostly soft and pollinose, but with a small, shiny, sclerotized area near the base. . . . Subgenus *Catachlorops*.
Labella small, hardly one-third of the length of the proboscis, mostly shiny and sclerotized 2.
2. Frons narrow; callus not as wide as frons. Thorax and abdomen without transverse markings. Species generally 15 mm. or longer Subgenus *Psalidia*.
Frons moderately to very broad; callus as wide as frons. Thorax and abdomen with prominent transverse markings. Species generally less than 12 mm. long. Subgenus *Dichelacera*, proper.

*49. *Dichelacera* (*Dichelacera*) *analys* Hine, 1920. Synonym: *Dichelacera costaricensis* Kröber, 1931g.

Chocó: El Valle, Utría (J. Boshell. — Determined by G. Fairchild); Andagoya (F. Otoyá. — Determined by G. Fairchild); Condoto, one of the type localities of *D. costaricensis*. — Valle del Cauca: Puerto Merizalde, Río Naya (S. Renjifo).

*50. *Dichelacera* (*Dichelacera*) *marginata* Macquart, 1847.

Chocó: Lloró (S. Renjifo); Río Cabi near Quibdó (S. Renjifo); Andagoya (D. Augustine; F. Otoyá). — Meta: Villavicencio (M. Bates. — Determined by G. Fairchild). — Santander Sur: Jazmín (recorded by Dunn, 1929). — Valle del Cauca: Quebrada San Joaquin near Buenaventura (S. Renjifo).

*51. *Dichelacera* (*Dichelacera*) *regina* Fairchild, 1940.

Cauca: Río Micay (S. Renjifo). — Chocó: Istmina (S. Renjifo); Río Nimiquía (E. Osorno and J. Boshell). — Meta: Restrepo (J. Bequaert). — Valle del Cauca: Río Anchicaya, at Kilom. 87 on road from Cali to Buenaventura (S. Renjifo); Puerto Merizalde, Río Naya (S. Renjifo); Veneral, Río Yurumanguí (S. Renjifo).

Dichelacera scapularis Macquart (1847) was recorded by Dunn (1929) from La Dorada, Caldas. The identification appears to be open to question, as this species is known with certainty only from Mexico and the Republic of Honduras.

*52. *Dichelacera* (*Dichelacera*) *submarginata* Ad. Lutz, 1915.

Meta: Villavicencio (M. Bates). — Putumayo: La Tagua (Rómulo Patiño).

53. *Dichelacera* (*Dichelacera*) *rufipennis* (Macquart). Synonym: *Tabanus rufipennis* Macquart, 1838.

This species was originally described from Brazil. In 1845, Macquart referred to it a female from New Grenada, which may have meant Colombia. Whether this specimen was conspecific with the type seems doubtful. — Not seen by us.

54. *Dichelacera* (?*Catachlorops*) *nigripalpis* (Macquart). Synonym: *Tabanus nigripalpis* Macquart, 1845.

This species was originally described without definite locality from "the temperate regions of New Grenada," which may have meant Colombia. The description is rather vague as to the shape of the antenna, the third segment having a "pointe assez forte." Kröber (1931), who never saw it, placed it tentatively in *Catachlorops*. — Not seen by us.

*55. *Dichelacera* (*Catachlorops*) *testacea* Macquart, 1846.

Meta: Restrepo (J. Bequaert); Villavicencio (M. Bates). — Vaupés: between San José de Guaviare and Calamar (A. Gast). — Originally described from Colombia, without more definite locality.

56. *Dichelacera* (?*Catachlorops*) *quadrimalculata* (Macquart). Synonyms: *Tabanus quadrimalculatus* Macquart, 1845; *Tabanus pæcilopterus* Schiner, 1868.

T. quadrimalculatus was originally described without definite locality from "New Grenada," which may have meant Colombia. — Not seen by us.

*57. *Dichelacera* (*Catachlorops*) *rufescens* (Fabricius). Synonym: *Tabanus rufescens* Fabricius, 1805.

Magdalena: Vista Nieve, Sierra Nevada de Santa Marta (H. Viereck).

*58. *Dichelacera* (*Catachlorops*) *transposita* Walker, 1854.

Colima: La Brea (S. Renjifo). — Valle del Cauca: Puerto Merizalde, Río Naya (S. Renjifo). — This species was originally described from the "West Coast of America," which may possibly have been in Colombia.

*59. *Dichelacera* (*Psalidia*) *vespertina*, new name. Synonym: *Tabanus elongatus* Macquart, 1846; not of Wiedemann, 1828.

Chocó: Río Niquia (E. Osorno and J. Boshell). — Cundinamarca: Bogotá (B. Guevara). — This locality needs to be confirmed). — Meta: Villavicencio (G. Fairchild); Restrepo (J. Bequaert). — Valle del Cauca: La Carmelita, Río Frío (S.

Renjifo). — The species was originally described by Macquart from the temperate regions of "New Grenada," which may have meant Colombia.

*60. *Dichelacera* (*Psalidia*) *fulminea* (Hine). Synonyms: *Tabanus fulmineus* Hine, 1920; *Tabanus festivus* Hine, 1920, not of Wiedemann, 1828; *Psalidia ocellata* Enderlein, 1925; possibly also *Bellardia furcata* Bigot, 1892 (described without locality), which name is antedated in *Dichelacera* by *Dichelacera* (*Psalidia*) *furcata* (Wiedemann, 1828).

Boyacá: Muzo, the type locality of *Psalidia ocellata* (also collected by J. Bequaert and by A. Gast). — Enderlein's additional locality "Bogotá" probably was only the place from which the specimen was shipped to Europe.

61. *Dichelacera* (*Psalidia*) *cinnamomea* (Schiner). Synonyms: *Tabanus cinnamomeus* Schiner, 1868; and, according to Kröber (1931), *Chelommia fibulata* Enderlein, 1922 and 1925. Schiner's specific name is not duplicated by the earlier *Tabanus cinnamomeus* Doleschall, 1858, which is spelled otherwise.

Enderlein's types of *C. fibulata* came from Colombia: Guaya-bal (Valle del Cauca); Cartago (Valle del Cauca); and Alto do Muelas (?error for Alto de las Mulas; not located). — Not seen by us.

62. *Dichelacera* (?*Psalidia*) *peruviana* (Macquart). Synonym: *Tabanus peruvianus* Macquart, 1848.

Kröber (1931c) records this species from Colombia, without more definite locality. — Not seen by us.

Dasychela Enderlein, 1922

(*Di cladocera* Enderlein, 1922; not of Ad. Lutz, 1912)

The generic name *Di cladocera* was first proposed on p. 29 of an anonymous pamphlet published at Rio de Janeiro in 1909, with the title: "Instituto Oswaldo Cruz em Manguinhos, Rio de Janeiro."¹ The author of the name was certainly Ad. Lutz, as he repeated this and other generic names proposed in the pamphlet in his later publications. No characters were mentioned in 1909, but the following seven described species were included: "*D. immaculata* Macquart, *D. furcata* Wiedemann

¹ Kröber's (1940) statement that "Dr. Lutz established this genus in 1900, in Mem. Inst. Osw. Cruz, p. 29" is erroneous. Kröber's method of determining the genotype by elimination is no longer the accepted procedure.

(*macrodonta* Macquart), *D. potator* Wiedemann, *D. guttipennis* Wiedemann, *D. macula* (*scutellata*) Macquart, *D. luctuosa* Macquart, *D. rufipennis* Macquart." As the genus was not defined in 1909, the rules of nomenclature might be interpreted so as to make the 1909 name a *nomen nudum*, notwithstanding the citation of several described species. The first valid use of *Dicladocera*, according to the prevailing rules, appears to be by Ad. Lutz in 1912 (Comm. Linhas Telegr. Estrat. Matto Grosso Amazonas, Anexo No. 5, Hist. Nat., Zool., Tabanideos, p. 4), when he described the new species *Dicladocera unicolor*. The correct genotype would then be *D. unicolor*, by monotypy, as Bequaert stated in 1924 (*Psyche*, XXXI, p. 28).

Enderlein in 1922 (Mitt. Zool. Mus. Berlin, X, pt. 2, p. 346) selected as genotype "*D. guttipennis* (Wiedemann, 1828)" = *Tabanus guttipennis* Wiedemann, 1828. Although this species was included by Ad. Lutz in 1909, it was not mentioned by him in 1912, when the generic name was first validly proposed. Unfortunately, from Lutz' description and figure his *D. unicolor* does not appear to be congeneric with *T. guttipennis*, as the eyes are presumably bare and the tooth of the third antennal segment is only moderately long. For this reason we feel impelled to discard *Dicladocera* for the group thus called by Enderlein. Kröber and Fairchild, and to use instead the name *Dasychela* Enderlein, 1922 (Mitt. Zool. Mus. Berlin, X, pt. 2, p. 380; monotypic for *D. limbativena* Enderlein, 1922). This name was dropped by Enderlein in 1925, as he then described *limbativena* as a species of *Dicladocera*.

Dasychela includes here all Neotropical Tabaninae with normal tibiae, a bare or almost bare subepaulet (sometimes with a narrow patch of a few macrotrichia near the middle), a long and often finger-shaped upper process near the base of the third antennal segment, and hairy or pubescent eyes (hairs sometimes short, scattered and easily overlooked). Enderlein at first (1922) placed his *Dicladocera* in the key as if the eyes were bare; but he corrected this error later (1925). The eyes are distinctly pubescent in *D. guttipennis*.

Stypochela Enderlein, 1922. This genus was originally proposed for a single species, *Stypochela bogotana* Enderlein, 1922, on the strength of the slender, narrow body and the presence of an appendix to the fork of the third longitudinal vein. These characters are scarcely of even subgeneric value. We should

have united *Stypochela* with *Dicladocera*, were it not that Kröber found the type of *S. bogotana* to have only three, instead of four, terminal annuli to the third antennal segment. The eyes are pubescent.

63. *Dasychela perplexa* (Walker). Synonym: *Tabanus perplexus* Walker, 1850.

This species was originally described from Colombia, without more definite locality. Kröber (1940) redescribed the type. — Not seen by us.

*64. *Dasychela macula* (Macquart). Synonyms: *Tabanus macula* Macquart, 1845; *Tabanus auribarbis* Macquart, 1848; *Tabanus argyrophorus* Schiner, 1868; *Tabanus submacula* Walker, 1850.

Magdalena: northwestern Sierra Nevada de Santa Marta (P. Darlington); San Lorenzo Mts. (reported by Kröber, 1940). — Valle del Cauca: La Cumbre (Collector?). — *T. submacula* Walker was originally described from Colombia, without definite locality. Surcouf (1919) recorded *T. auribarbis* from the Valley of the Magdalena River.

Kröber (1940) includes also *Tabanus scutellatus* Macquart (1838) among the synonyms of *D. macula*. Specimens from southern Brazil, before us, agree perfectly with Macquart's description, but are very distinct from *D. macula*. Among other points, the eyes are completely bare, which places the species in the subgenus *Psalidia*. Moreover, what Ad. Lutz reported from southern Brazil as *D. macula*, appears to have been mostly, if not always, *D. scutellata* (Macquart).

65. *Dasychela acheronitens* (Kröber). Synonym: *Dicladocera acheronitens* Kröber, 1931g.

The original description was made partly on specimens from Colombia, without more definite locality. — Not seen by us from Colombia.

66. *Dasychela limbativena* Enderlein, 1922. Synonym: *Dicladocera limbativena* Enderlein, 1925.

The type locality of this species is given as "Colombia: Bogotá, Guayabal." This Guayabal is most probably in Valle del Cauca. Bogotá appears to be in this case merely the locality from which the specimen was shipped to Europe. — Not seen by us from Colombia; but we studied a female from Ecuador.

67. *Dasychela steinheili* (Enderlein). Synonym: *Di cladocera steinheili* Enderlein, 1925.

The type locality of this species is given as "Colombia: Bogotá, Quindin." This was evidently a misspelling of Quindío, a district in the northeastern corner of Valle del Cauca and the adjoining sections of Caldas and Tolima. — Not seen by us.

*68. *Dasychela basirufa* (Walker). Synonyms: *Tabanus basirufus* Walker, 1850; *Di cladocera pallidetibia* Kröber, 1940.

Cundinamarca: Guasca (E. A. Chapin). — Originally described from Colombia, without more definite locality. The hairy eyes and long antennal tooth, curved downward, refer the species to *Dasychela*.

*69. *Dasychela calopectera* (Schiner). Synonym: *Tabanus calopecterus* Schiner, 1868.

Magdalena: Cincinnati, Santa Marta (W. M. Mann). — Kröber (1940) recorded this species from Colombia, without definite locality.

70. *Dasychela* (*Stypochela*) *bogotana* (Enderlein). Synonym: *Stypochela bogotana* Enderlein, 1922 and 1925.

This species was originally described with the following localities: "Columbien, Bogotá, Cartago und Las Pavas — Piodsaa Molar." Both Cartago and Las Pavas are in Valle del Cauca; the locality Bogotá is probably erroneous, being merely the place from which the specimens were shipped to Europe. — Not seen by us.

Alliomma Borgmeier, 1934

Alliomma was proposed by Borgmeier (1934, Rev. de Entomologia, IV, pt. 2, pp. 222, footnote, and 269), with *Ommallia thiemeana* Enderlein as type, for Kröber's *Ommallia* of 1931 (Rev. de Entomologia, I, pt. 3, p. 293). The type of Enderlein's genus *Ommallia* (1923) is *Ommallia viridis* Enderlein, a species not congeneric with *O. thiemeana* and now placed in *Cryptotylus*. The name *Alliomma* should be used for a group of species more closely related to the subgenus *Tabanus*, proper, than to *Dichelacera*. While these species agree with *Dichelacera* and *Dasychela* (= *Di cladocera* of most authors) in the long, finger-shaped extension of the base of the first antennal segment, they differ by the subepaulet completely covered with macrotrichia. The eyes are bare.

*71. *Alliomma macquarti* (Schiner). Synonyms: *Tabanus macquarti* Schiner, 1868; *Tabanus ruber* Macquart, 1845, not of Thunberg, 1827; *Tabanus infuscatipennis* "Macquart" Surcouf, 1919, *Mesure Arc Equat. Méridien*, X, p. 230; *Tabanus indscriptus* "Schiner" Kröber, 1931e; *Gymnochela bigoti* Kröber, 1931, *Zoolog. Anzeiger*, XCVI, p. 50, fig. 1; not *Tabanus bigoti* Bellardi, 1859.

Boyacá: Muzo (J. Bequaert).—Meta: Restrepo (J. Bequaert; W. H. W. Komp); Villavicencio (J. Bequaert).—Putumayo: Puerto Limón (S. Renjifo).—Vaupés: Mitú (P. Allen).

The complicated synonymy of this species appears to be as follows: (1) Schiner described his *T. macquarti* from a female said to have come from Colombia and his description fits our specimens. He gave both *T. apicalis* Macquart and *T. rubidus* Macquart as doubtful synonyms; but neither of these species were Schiner's *macquarti* in our opinion. (2) Macquart gave Mexico as the locality of his *T. ruber*; but Surcouf (1919) states that the specimen at the Paris Museum, presumably the type of *ruber*, bears two labels one in Macquart's hand "Colombie"; the other "Brésil, Guérin-Méneville." Surcouf redescribed *ruber* from this specimen, for which he also found and published the manuscript name *infuscatipennis*. Our Colombian specimens agree with Surcouf's description. (3) Kröber described "*Gymnochela bigoti*" evidently from Schiner's type of *T. macquarti*, although he says that the specimen came from Venezuela. His description and figures fit the Colombian specimens which we call *macquarti*. Kröber was mistaken, we believe, in referring his specimen to *T. bigoti* Bellardi, which was a substitute name for *Tabanus apicalis* Macquart, 1847 (not of Wiedemann, 1828), Bellardi's description being based on Macquart's type. The true *bigoti* is a *Tabanus* with a short tooth on the third antennal segment, as described by Osten Sacken for the female in 1886 (*Biol. Centr. Amer., Dipt.*, I, p. 48). Osten Sacken was in error, however, when he cited as a synonym of his *bigoti*, *T. macquarti* Schiner, which has a very long antennal tooth. The true *T. bigoti* was correctly recognized by Fairchild (1943a, p. 442, figs. 4 and 5). (4) *Tabanus indscriptus* "Schiner" is a manuscript name which Kröber (1931e) found with the type of *T. macquarti*.

*72. *Alliomma thiemeana* (Enderlein). Synonyms: *Ommallia thiemeana* Enderlein, 1925; *Ommallia interrupta* Enderlein, 1925.

Valle del Cauca: Cali (B. Losada. — U. S. N. M.). — Both *O. thiemeana* and *O. interrupta* were originally described from Colombia, without definite locality ("Cordillera, tierra caliente").

73. *Alliomma brevihamus* (Enderlein). Synonym: *Ommallia brevihamus* Enderlein, 1925.

Originally described from Colombia, without definite locality ("Cordillera, tierra caliente"). Not seen by us.

*74. *Chlorotabanus inanis* (Fabricius). Synonym: *Tabanus inanis* Fabricius, 1787.

Meta: El Caibe (reported by Antunes, 1937); Villavicencio (M. Bates. — Determined by G. Fairchild); Restrepo (J. Bequaert). — Putumayo: Mocoa (S. Renjifo); Río Putumayo, between Itiquilla and Puerto Arana (S. Renjifo); La Tagua (Rómulo Patiño).

*75. *Chlorotabanus mexicanus* (Linnaeus). Synonym: *Tabanus mexicanus* Linnaeus, 1767.

Antioquia: Murindó (reported by Dunn, 1929); Providencia (F. L. Gallego). — Cauca: Río Micay (S. Renjifo). — Chocó: along the Atrato River (reported by Dunn, 1929); Arquía (reported by Dunn, 1929); Andagoya (D. Augustine). — Reported from the Magdalena River by Kröber (1931f) and also taken there by M. Hertig.

*76. *Cryptotylus unicolor* (Wiedemann). Synonym: *Tabanus unicolor* Wiedemann, 1828.

Meta: Hacienda Yacuana near Villavicencio (E. Osorno). — Reported from the Magdalena River by Kröber (1932c).

77. *Cryptotylus limonus* (Townsend). Synonyms: *Tabanus mexicanus* var. *limonus* Townsend, 1897; *Ommallia viridis* Enderlein, 1925.

Meta: Villavicencio (M. Bates. — Determined by G. Fairchild). — *O. viridis* was originally described from Colombia, without definite locality ("Cordillera, tierra caliente"). — Not seen by us from Colombia.

*78. *Leucotabanus leucaspis* (Wiedemann). Synonym: *Tabanus leucaspis* Wiedemann, 1828.

Boyacá: Guaguaquí (S. Renjifo). — Meta: El Caibe (re-

ported by Antunes, 1937); Río Negro, 20 Kilom. south of Villavicencio (J. Bequaert); Restrepo (J. Bequaert; W. H. W. Komp); Villavicencio (M. Bates. — Determined by G. Fairchild). — Santander Sur: Río Negro (J. V. Acuña). — Valle del Cauca: Hacienda La Carmelita, Río Frío (S. Renjifo). — Vaupés: between San José del Guaviare and Calamar (A. Gast. — Determined by G. Fairchild).

*79. *Leucotabanus flavinotum* (Kröber). Synonyms: *Tabanus nigriflavus* Kröber, 1931, not of Kröber, 1930; *Tabanus flavinotum* Kröber, 1934.

Boyacá: Muzo (J. Bequaert).

80. *Leucotabanus canithorax* Fairchild, 1941. Synonym: *Tabanus albicans* Macquart, 1845, not of Macquart, 1834 or 1838.

Magdalena: Sevilla (reported by Curran, 1928).

Macquart's *T. albicans* of 1845 was based on a male from Colombia, without more definite locality. Kröber (1929) described what he assumed to be the female, also from Colombia, without more definite locality. Fairchild (1941) doubts whether this female was actually conspecific with Macquart's male. — Not seen by us from Colombia.

*81a. *Hybomitra quadripunctata* (Fabricius). Synonyms: *Tabanus quadripunctatus* Fabricius, 1805. *Tabanus punctipennis* Macquart, 1838; *Tabanus nigropunctatus* Bellardi, 1859.

Antioquia: Medellín, 1538 m. (E. A. Chapin; H. Daniel; F. L. Gallego). — Meta: Villavicencio (M. Bates. — Determined by G. Fairchild). — Valle del Cauca: Tres Esquinas, Habana, Buga (S. Renjifo); Buenaventura.

*81b. *Hybomitra quadripunctata* var. *amabilis* Walker. Synonyms: *Tabanus amabilis* Walker, 1848; *Tabanus maculipennis* Macquart, 1834 and 1845, not of Wiedemann, 1828; *Hypopelma quadripunctata* aberr. *dasyphyrtina* Enderlein, 1925.

Meta: Restrepo (J. Bequaert; also reported by Antunes, 1937). — Enderlein (1925) reported the var. *amabilis* under the name *Dasyphyrtia maculipennis*, from Colombia, without definite locality ("Cordillera, tierra templada").

82. *Hybomitra* (?) *bogotana* (Enderlein). Synonym: *Dasyommia bogotana* Enderlein, 1925.

Cundinamarca: Bogotá (Steinheil), the type locality of the species. As the type lacked the third antennal segment, the correct place of this species remains obscure. — Not seen by us.

*83. *Hybomitra minos* (Schiner). Synonym: *Tabanus minos* Schiner, 1868.

Santander: Paramo del Almorzadero, 14,000 ft., one male (A. Gast).

The male which we refer to *H. minos* agrees with Schiner's (1868) and Kröber's (1940) descriptions of the female, except for purely sexual differences.

*84. *Hybomitra indiorum*, new name. Synonym: *Tabanus rufiventris* Macquart, 1845; not of Fabricius, 1805, nor of Macquart, 1838.

Caquetá: Florencia (Rómulo Patiño).

This species was originally described as from Sante Fé de Bogotá. We believe we have recognized it in a series of females from Florencia, which agree well with the description. There are a few short hairs on the eyes and the frontal callus is of the elongate, broad type found in the other species of *Hybomitra*.

*85. *Hybomitra rubiginipennis* (Macquart). Synonyms: *Tabanus rubiginipennis* Macquart, 1845; *Tabanus adustus* Walker, 1850.

Meta: Restrepo (J. Bequaert). — *H. rubiginipennis* was originally described from the temperate regions of "New Grenada," which may have meant Colombia. *T. adustus* was described from Colombia, without more definite locality. Kröber (1940), who synonymized these two species, included *rubiginipennis* in *Di cladocera*; but both he and Macquart figure the third antennal segment correctly with a short, though strong tooth. The eyes bear a few scattered short hairs, easily overlooked, which explains why neither Macquart nor Walker mentioned them.

*86. *Phæotabanus (Aegialomyia) cinereus* (Wiedemann). Synonym: *Tabanus cinereus* Wiedemann, 1821.

Meta: Villavicencio, on a sandy river beach (G. Fairchild).

According to Dr. Fairchild, the eyes of the female are in life purple with two green cross-bands. The median purple streak is darker than the upper and lower corners.

The species seems to fit best in *Aegialomyia* Philip, a group which appears to be only subgenerically distinct from *Phæotabanus*.

*87. *Brachytabanus longipennis* (Kröber). Synonym: *Stenotabanus longipennis* Kröber, 1930a.

Boyacá: Muzo (J. Bequaert). — Meta: Villavicencio (J. Bequaert). — Santander Sur: Bocas del Rosario, Río Magdalena, male taken at light (J. Bequaert). — Also taken by E. Osorno on the Upper Magdalena River, exact locality unknown.

*88. *Stenotabanus obscurus* Kröber, 1930a.

Putumayo: Urcusique (S. Renjifo).

In life the eyes of the female are dark purple with two green cross-bands.

*89. *Stenotabanus maculifrons* (Hine). Synonym: *Tabanus maculifrons* Hine, 1907.

Meta: Restrepo (reported by Antunes, 1937); Río Caney near Restrepo (J. Bequaert); Villavicencio (M. Bates. — Determined by G. Fairchild). — Also taken by E. Osorno on the Upper Magdalena River, exact locality unknown.

*90. *Stenotabanus cajennensis* (Fabricius). Synonym: *Tabanus cajennensis* Fabricius, 1787.

Meta: region of Río Negro, south of Villavicencio (J. Bequaert). — Tolima: between Mediación and Ibagué, 1500 to 2500 m. (reported by Therese von Bayern, 1903. — The occurrence of this lowland species at such high altitude appears somewhat open to question).

*91. *Stenotabanus pequeniensis* Fairchild, 1942e.

Meta: Restrepo (J. Bequaert), locality of some of the paratypes.

92. *Stenotabanus* (?) *detersus* (Walker). Synonym: *Tabanus detersus* Walker, 1850.

Originally described from Colombia, without more definite locality. Kröber (1930e) redescribed the type, but could not decide whether to place it in *Stenotabanus* or in *Macrocnemus*. — Not seen by us.

*93. *Agelanius columbianus* (Enderlein). Synonyms: *Archiplatius columbianus* Enderlein, 1925; *Dasybasis columbiana* Stone, 1944.

Cundinamarca: Monserrate near Bogotá, 3,000 m. (E. Osorno), male and female. — A female at the U. S. Nat. Mus. is merely labelled "Colombia." — Originally described from Colombia, without definite locality: "Cordillera, tierra templada."

*94. *Agelanius osornoi* J. Bequaert, 1947. (See appendix to this paper).

Cundinamarca: Monserrate near Bogotá, 3,000 m. (Hernando Osorno), type locality of the species.

Tabanus Linnaeus

KEY TO SUBGENERA

1. Abdomen with one, two, or three pale longitudinal stripes or rows of contiguous or nearly contiguous spots. Wings hyaline or smoky, or faintly clouded along the veins. Eyes of female bare, green with two or three dark cross-bands in life; of male bare or hairy, with or without an area of larger facets. Subgenus *Neotabanus*. Abdomen usually without longitudinal stripes or rows of spots; if with rows of spots, the eyes of female unbanded or with only one band in life 2.
2. Disk of scutellum with a conspicuous spot of black pubescence, more or less surrounded by a ring of white hairs. Eyes of female unbanded. Subgenus *Lophotabanus*. No spot of black pubescence on scutellum; sometimes a small prescutellar patch of black hairs 3.
3. Wings prominently clouded or spotted with brown, seldom mostly black, as a rule with hyaline areas about the cross-veins. Frons usually very narrow, with ridge-like callus. Eyes of female unbanded Subgenus *Philipotabanus*. Wings hyaline, smoky, entirely black, or spotted at the cross-veins; in doubtful cases frons otherwise 4.
4. Relatively slender species. Third antennal segment not crescent-shaped, only slightly angular near the upper base. Upper branch of third longitudinal vein with a very long appendix Subgenus *Macrocormus*. Stout species. Third antennal segment crescent-shaped, with a strong tooth near the upper base. Upper branch of third longitudinal vein normally without appendix. Subgenus *Tabanus*, proper.

*95a. *Tabanus* (*Neotabanus*) *lineola* var. *carneus* Bellardi. Synonyms: *Tabanus carneus* Bellardi, 1859; *Tabanus appendiculatus* Hine, 1906.

Amazonas: Caucaya (S. Renjifo); Tarapacá (S. Renjifo). — Antioquia: near Porceto, Río Porce (N. Weber); El Dos, Turbo (S. Renjifo); Micuro, Río Leon (S. Renjifo); Puerto Berrio (reported by Dunn, 1929). — Atlántico: Puerto Colombia (J. Bequaert); Calamar (J. Bequaert); Barranquilla (reported by Kröber, 1933b); Sabanilla (reported by Kröber,

1933*b*). — Boyacá: Muzo (J. Bequaert). — Chocó: Andagoya (D. Augustine); Sautatá (S. Renjifo). — Magdalena: Sevilla (G. Salt); Río Frío (G. Salt). — Meta: Restrepo (J. Bequaert); Villavicencio (J. Bequaert; M. Bates). — Putumayo: La Tagua (Rómulo Patiño). — Santander Sur: Bocas del Rosario (J. Bequaert); Puerto Wilches (reported by Dunn, 1929); Barranca (reported by Dunn, 1929); Barrancabermeja (J. Bequaert; also reported by Dunn, 1929). — Valle del Cauca: Hacienda La Brisa, Ginebra (S. Renjifo); Ginebra (S. Renjifo); Hacienda El Tablazo, Tuluá (S. Renjifo); Tres Esquinas, Habana, Buga (S. Renjifo); Guayabal, Río Cajambre (S. Renjifo); Hacienda La Carmelita, Río Frío (S. Renjifo); Hormiguero (H. F. Schwarz).

*95*b*. *Tabanus* (*Neotabanus*) *lineola* var. *stenocephalus* Hine. Synonym: *Tabanus stenocephalus* Hine, 1906.

Meta: Villavicencio (M. Bates).

*95*c*. *Tabanus* (*Neotabanus*) *lineola* var. *plangens* Walker. Synonym: *Tabanus plangens* Walker, 1854.

Amazonas: Tarapacá (S. Renjifo). — Boyacá: Casanare (L. Patiño-Camargo). — Chocó: Río Atrato (reported by Fairchild, 1942); north of the mouth of the Río Arquía, Río Atrato (reported by Kröber, 1933*b*). — Meta: Restrepo (J. Bequaert); Villavicencio (J. Bequaert). — Putumayo: San Pedro (S. Renjifo); Puerto Limón (S. Renjifo); La Tagua (Rómulo Patiño). — Valle del Cauca: Buenaventura (N. Weber). — Vaupés: between San José de Guaviare and Calamar (A. Gast. — Determined by G. Fairchild).

*96. *Tabanus* (*Neotabanus*) *hookeri* Knab, 1915.

Magdalena: Santa Marta (J. H. Egbert). — Valle del Cauca: Cali, 3,260 ft. (H. F. Schwarz. — Reported by J. Bequaert, 1940).

*97. *Tabanus* (*Neotabanus*) *fumatipennis* Kröber, 1933*b*.

Antioquia: El Dos, Turbo (S. Renjifo). — Meta: Villavicencio (M. Bates. — Determined by G. Fairchild). — Putumayo: Mocoa (S. Renjifo); San Pedro (S. Renjifo). — Valle del Cauca: Hacienda La Carmelita, Río Frío (S. Renjifo); Guayabal, Río Cajambre (S. Renjifo).

*98. *Tabanus* (*Neotabanus*) *restrepoensis* Fairchild, 1942.

Meta: Restrepo (J. Bequaert), the type locality of the species; Villavicencio (M. Bates. — Determined by G. Fairchild).

99. *Tabanus* (*Neotabanus*) *lucidecallosus* Fairchild, 1942.

Meta: Restrepo (determined by G. Fairchild). — Not seen by us from Colombia.

*100. *Tabanus* (*Neotabanus*) *cicur* Fairchild, 1942.

Meta: Restrepo (J. Bequaert; P. C. A. Antunes), the type locality of the species; La Unión, 12 Kilom. east of Restrepo (J. Bequaert).

*101. *Tabanus* (*Neotabanus*) *amplifrons* Kröber, 1933*b*.

Meta: Villavicencio (M. Bates. — Determined by G. Fairchild); Restrepo (J. Bequaert). — Santander Sur: Puerto Olaya (J. Bequaert). — Vaupés: between San José del Guaviare and Calamar (A. Gast. — Determined by G. Fairchild).

*102. *Tabanus* (*Neotabanus*) *columbus* Fairchild, 1942.

Magdalena: Ciénaga (G. Salt). — Vaupés: between San José del Guaviare and Calamar (A. Gast. — Determined by G. Fairchild).

*103. *Tabanus* (*Neotabanus*) *stuppeus* Fairchild, 1942.

Meta: La Unión, 12 Kilom. east of Restrepo (J. Bequaert).

The foregoing two species are very poorly defined and we are inclined to regard them as one and the same. Our specimens were compared with the types.

*104. *Tabanus* (*Neotabanus*) *angustivitta* Kröber. Synonym: *Tabanus dorsiger* var. *angustivitta* Kröber, 1929.

Meta: Villavicencio (M. Bates. — Determined by G. Fairchild); Restrepo (J. Bequaert, reported by G. Fairchild, 1942). — Valle del Cauca: Hacienda San José, Bugalagrande (S. Renjifo). — This species was reported from Colombia as *T. truquii* by J. Bequaert, 1940.

*105. *Tabanus* (*Neotabanus*) *comitans* Wiedemann, 1828.

Meta: Restrepo (J. Bequaert).

106. *Tabanus* (*Neotabanus*) *colombensis* Macquart, 1845.

This species was originally described from Colombia, without definite locality. The abdomen was said to have two longitudinal yellowish-white stripes. — Not seen by us.¹

*107. *Tabanus* (*Tabanus*) *lividus* Walker, 1848. Synonym: *Tabanus viduus* Walker, 1850.

Amazonas: Leticia (S. Renjifo). — Boyacá: Muzo (J. Be-

¹ The *Tabanus trilineatus*, recorded by Curran (1928) from Sevilla (Magdalena) was no doubt one of the species of *Neotabanus* listed in this paper; but it is impossible to decide which species, without seeing the specimen.

quaert). — Meta: Villavicencio (M. Bates); Restrepo (J. Bequaert).

*108. *Tabanus (Tabanus) alboater* Walker, 1850.

Vaupés: Mitú (P. Allen); between San José del Guaviare and Calamar (A. Gast).

*109. *Tabanus (Tabanus) discus* Wiedemann, 1828.

Vaupés: Mitú (P. Allen).

*110. *Tabanus (Tabanus) olivaceiventris* Macquart, 1847. Synonyms: *Tabanus imponens* Walker, 1857; *Atylotus pulverulentus* Bigot, 1892; *Tabanus coriarius* "Schiner" Kröber, 1929.

Magdalena: Río Frío (G. Salt). — We have seen a male of this species taken in Colombia, unfortunately without more definite locality. It is almost exactly like the female.

*111. *Tabanus (Tabanus) importunus* Wiedemann, 1828; not of Macquart, 1847.

Magdalena: Aracataca (P. J. Darlington). — Meta: Restrepo (J. Bequaert); El Caibe, near Restrepo (reported by Antunes, 1937).

*112. *Tabanus (Tabanus) ferriker* Walker, 1850. Synonym: *Tabanus druyvesteijni* Szilády, 1926.

Antioquia: Medellín Valley (F. L. Gallego). — Atlántico: Barranquilla (reported by Dunn, 1929). — Magdalena: Santa Marta (J. H. Egbert); Sevilla (G. Salt). — Meta: Restrepo (J. Bequaert). — Valle del Cauca: Hacienda La María, Buga (S. Renjifo).

*113. *Tabanus* (? *Tabanus*) *hirtitibia* Walker, 1850.

Caquetá: Florencia (Rómulo Patiño). — Originally described from Colombia, without definite locality.

Although our specimen agrees well with Walker's description, it lacks the antennæ, which were also broken off in the type. It is possible that the third segment has a long, finger-shaped tooth, in which case the species may have to be transferred to *Alliomma*.

114. *Tabanus* (? *Tabanus*) *flavifacies* Macquart, 1845.

Originally described from Colombia, without more definite locality. The abdomen is described as black, with three rows of white triangular spots. The size ($10\frac{1}{2}$ French lines = 23.7 mm.) is rather large for a *Neotabanus*, and it was more likely a true *Tabanus*. — Not seen by us.

115. *Tabanus* (*Lophotabanus*) *pseudoculus* Fairchild, 1942.

Boyacá (? or Caldas): Neira (L. Murillo. — Determined by G. Fairchild). — Not seen by us from Colombia.

*116. *Tabanus* (*Lophotabanus*) *xipe* Kröber, 1934. Synonym: *Lophotabanus surinamensis* Kröber, 1929; not *Tabanus surinamensis* Macquart, 1838.

Chocó: Andagoya (A. Gast). — Meta: Restrepo (J. Bequaert; also reported by Antunes, 1937); Villavicencio (M. Bates).

117. *Tabanus* (*Lophotabanus*) *oculus* Walker, 1848. Synonyms: *Tabanus albo-notatus* Bellardi, 1859; *Tabanus oculatus* Dunn, 1929 (misspelling of *oculus*).

Santander Sur: Jazmín, between Puerto Wilches and Bucaramanga (reported by Dunn, 1929). — *T. oculus* was originally described in part from Colombia without more definite locality. — Not seen by us from Colombia.

After studying many specimens of this group from Yucatan, Honduras, Guatemala, Panama, Colombia, Venezuela, Trinidad, and Brazil, we have come to the conclusion that *T. albo-circulus* Hine and *T. xipe* Kröber will eventually be synonymized with *T. oculus*. *T. oculus* is used at present for specimens with the first posterior cell closed and stalked before the margin, a character which is not always of specific value in *Tabanus*.¹ Of the others, with open first posterior cell, the larger specimens are placed in *xipe*, while the smaller ones become *albocirculus*, a procedure which leaves the medium-sized ones in doubt. Specimens with the first posterior cell closed just at or near the margin, or barely open, must also be placed arbitrarily.

*118. *Tabanus* (*Lophotabanus*) *pruinicorpus* Kröber, 1934. Synonym: *Lophotabanus pruinus* Kröber, 1929; not *Tabanus pruinus* Bigot, 1892.

Magdalena: Río Frío (G. Salt); Sevilla (G. Salt). — Kröber originally described his *L. pruinus* from Bolivia and Colombia (supposedly from Bogotá, a locality which is perhaps open to question).

¹ In the present paper the subgenus *Lophotabanus* Szilády (1926) includes *Bellardia* Rondani (1864) (not of Robineau-Desvoidy, 1863), a name later changed to *Bellaria* Strand (1928).

*119. *Tabanus (Macrocormus) sorbillans* Wiedemann, 1828.

Boyacá: Casanare (L. Patiño). — Meta: Restrepo (J. Bequaert).

120. *Tabanus (Macrocormus) obscurigaster* Kröber, 1934. Synonym: *Macrocornus obscuriventris* Kröber, 1930; not *Tabanus obscuriventris* Kröber, 1929.

Chocó: Condoto, type locality of the species. — Not seen by us.

121. *Tabanus (Philipotabanus) fascipennis* Macquart, 1845.

Originally described from Brazil and "New Grenada," the latter possibly meaning Colombia. Kröber (1930f) reported it from Bogotá, but it seems rather doubtful that it was actually taken there. — Not seen by us.

*122. *Tabanus (Philipotabanus) multiguttatus* Kröber, 1930f.

Cundinamarca: Bogotá, the type locality. — Magdalena: Sierra Lorenzo, at 8,500 ft. (H. Viereck). — Kröber gave also "New Grenada" and Ecuador as additional localities and placed the species in *Phæotabanus*.

*123. *Tabanus (Philipotabanus) magnificus* Kröber, 1934. Synonym: *Phæotabanus formosus* Kröber, 1930f; not *Tabanus formosus* Walker, 1848.

Cauca: Río Micay (S. Renjifo). — Chocó: Istmina (S. Renjifo); Andagoya (D. Augustine); Río Cabí near Quibdó (S. Renjifo). — Valle del Cauca: Kilom. 87 on road from Cali to Buenaventura, at Río Anchicayá (S. Renjifo); Veneral, Río Yurumanguí (S. Renjifo); Puerto Merizalde, Río Naya (S. Renjifo); Quebrada San Joaquín near Buenaventura (S. Renjifo); Condoto (reported by Kröber, 1930f, as one of the type localities of his *P. formosus*); Utría (J. Boshell. — Determined by G. Fairchild); Río Nimiquía (J. Boshell. — Determined by G. Fairchild).

124. *Tabanus* (?*Philipotabanus*) *criton* Kröber, 1934. Synonym: *Phæotabanus columbianus* Kröber, 1931f; not *Archiplatius columbianus* Enderlein, 1925, now placed in *Tabanus*.

Cundinamarca: Fusugasuga, the type locality. — Not seen by us.

125. *Tabanus* (?subgenus) *simplex* Walker, 1850.

This species was originally described from Colombia, without definite locality. Kröber (1934) placed it doubtfully as a synonym of *Tabanus (Lophotabanus) biflocus* Hine, of Cuba. This

appears improbable, particularly as Walker did not mention a black spot on the scutellum. — Not seen by us.

Walker (1848) referred doubtfully to the North American *Tabanus lasiophthalmus* Macquart, a specimen collected in Colombia by Goudot. This identification was certainly erroneous and probably based on a specimen of *T. quadripunctatus* Fabricius.

*126. *Diachlorus curvipes* (Fabricius). Synonym: *Hæmatopota curvipes* Fabricius, 1805.

Boyacá: Muzo (J. Bequaert; reported by Bequaert, 1944). — Valle del Cauca: Veneral, Río Yurumanguí (S. Renjifo).

Kröber (1928) reports *Diachlorus ferrugatus* (Fabricius) from Colombia, without definite locality; but this is certainly due to some error.

127. *Acanthocera albomarginata* (Kröber). Synonym: *Sphēcio-gaster albomarginata* Kröber, 1930.

Chocó: Condoto, the type locality. — Not seen by us.

*128. *Acanthocera formosa* Kröber, 1930d.

Meta: Restrepo (J. Bequaert. — Reported also by G. Fairchild, 1939).

*129. *Acanthocera trigonifera* Schiner, 1868.

Cundinamarca: Bogotá (reported by Kröber, 1928). — Magdalena: Santa Marta (F. L. Gallego). — The occurrence of this species near Bogotá needs to be confirmed.

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APPENDIX: A NEW *Agelanius* FROM COLOMBIA

BY JOSEPH C. BEQUAERT

Agelanius osornoi, new species

Female. — Medium-sized, black. Frons of medium width, with a large dirty-yellowish basal callus and a velvety-black median spot. Dorsum of thorax with grayish-white longitudinal stripes, of abdomen with a median row of white triangles and lateral transverse white markings. Legs black with mostly pale tibiae. Wing with a characteristic pattern of blackish spots.

Head transverse, about twice as wide as high in front view, black, mostly covered with grayish-white pollinosity, which is more brownish at level of antennae. Lower half of face, jowls and outer orbits with long white hairs, forming a conspicuous beard; upper part of face and subcallus with shorter hairs, mixed black and white. Frons about two and one-half times as long as wide at the subcallus, slightly narrowed toward vertex;

basal callus shiny, dirty-yellowish, touching the inner orbits, nearly twice as wide as high, rather abruptly extended upward into a median broad line, which is triangularly widened at the base and reaches to about mid-length of frons; middle third of frons with a large, dull, cordiform spot of velvety-black pollinosity, the broader lower end notched and divided by the smooth extension of the basal callus, the narrowed upper end jagged; remainder of frons and vertex gray pollinose, the velvety spot broadly separated from inner orbits; vertex flat, with a small brownish-pollinose median area; frons with many erect, black hairs, even on the shiny callus. Proboscis short, thick, with large, soft labella. (Antennae and palpi broken off.) Eyes densely covered with erect grayish hairs. Thorax black, mostly covered with ashy-gray pollinosity, except dorsally over four broad, blackish, longitudinal stripes; of the five grayish-white stripes thus produced, one on each side is very broad and divided posteriorly (above the wing base) by a short blackish streak; three in the middle are much narrower; the median one linear, slightly widened behind where it stops at the posterior third; the two admedian ones reaching the scutellum where they unite with the lateral stripe on each side, but broadly interrupted beyond mid-length of the dorsum; scutellum mostly with blackish pollinosity, the hind margin broadly gray pollinose. Hairs of thorax long, dense and white beneath, dorsally long, sparse, mostly black with a mixture of white particularly near the sides and at the hind margin of the scutellum. Abdomen: integument black, with indefinite slightly brownish areas at the sides of the first tergite; ventrally almost wholly grayish pollinose, dorsally with dull, velvety-black pollinosity on which stand out conspicuous white pollinose markings as follows: a median triangle on the hind margin of tergites 2 to 6, largest on 3 and 4 where they are about as high as wide and reach the anterior margin of the tergite, slightly smaller on 2 and 5 where they occupy half or less of the length of the tergite (triangle of tergite 2 wider than long), very small on 6; a narrow streak at hind margin on each side of tergites 2 to 6 (widest on 2) extending to near the median triangle, from which it is, however, sharply divided; in addition a similar, but broader streak on each side at anterior margin of tergite 2, leaving about the median third free and not connected on the sides with the streak of the hind margin; venter with long, white hairs; tergites with shorter, mostly black hairs,

except on the pale areas where some of the hairs are silvery-white, particularly on the median triangles. Legs black, grayish pollinose, with long, grayish-white hairs except over the dark portions of tibiæ and on tarsi, where they are black; tibiæ of normal shape, pale dirty-yellowish over basal two-thirds to three-fourths, which bear silvery-white hairs. Wing without appendix at fork of third longitudinal vein; all posterior cells open at margin; nearly hyaline with conspicuous blackish spots as follows: medium-sized spot at base of first submarginal cell, extending over base of first posterior cell, extreme apex of first basal cell and slightly into discal cell; spot at lower apex of second basal cell, more extended over base of fourth and fifth posterior cells and less so into discal cell; fairly large area around cross-vein at apex of discal cell, from the first to the fourth posterior cells; spot below stigma on second longitudinal vein; small cloudy blotches before the tips of all longitudinal veins, some weaker than others; stigma blackish; squamæ clouded; veins black; halteres blackish; subepaulet bare.

Length, 11.5 mm.; of wing, 9 mm.

COLOMBIA: Monserrate near Bogotá, Dept. Cundinamarca, at about 3,000 m. above sea-level (Hernando Osorno Collector); holotype at Mus. Comp. Zool. (No. 27634).

A. osornoi is related to several species of *Agelanius* from the Andes of South America, such as *A. excelsus* (Surcouf), *A. montium* (Surcouf) and *A. columbianus* (Enderlein). It is, however, readily separated from these and other species known to me by the conspicuous pattern of white markings on the abdomen, the arrangement of spots and clouds in the wing, as well as the large velvety-pollinose spot on the middle of the frons. For this reason I am describing it as new, notwithstanding the lack of antennæ.